Published in final edited form as:

Child Abuse Negl. 2016 August ; 58: 72–79. doi:10.1016/j.chiabu.2016.05.003.

Do self-reported data reflect the real burden of lifetime exposure to sexual violence among females aged 13–24 years in Malawi?

Amy Z. Fan[a,*], **Howard Kress**[b], **Sundeep Gupta**[c], **Nellie Wadonda-Kabondo**[c], **Mary Shawa**[d], and **James Mercy**[b]

[a]Contractor for Certified Technical Experts, Division of Violence Prevention, National Center for Injury Control and Prevention, Atlanta, GA, USA

[b]Division of Violence Prevention, Centers for Disease Control and Prevention, Atlanta, GA, USA

[c]Center for Global Health, Centers for Disease Control and Prevention, Atlanta, GA, USA

[d]Ministry of Gender, Children and Social Welfare, Malawi

Abstract

Background—Under most circumstances, the lifetime experience of sexual violence (SV) among girls and young women would likely increase with age. However, the empirical data from a retrospective study may not necessarily conform to this belief.

Methods—Data from a nationally representative sample of females aged 13–24 years in Malawi in 2013 (n = 1029) were analyzed. SV was defined as unwanted touching or attempted, pressured, or physically forced sex. The distribution of four types of SV among victims was compared between younger (13–18 years) and older (19–24 years) age groups. The strength of association between SV exposure and health outcomes was examined by age group.

Results—The risk of experiencing SV during their lifetime was three times greater for younger than that for older age females (Hazard ratio = 3.32). Among females who had experienced SV, older age females were more likely to report forced or pressured sex (41.2%) as their initial SV experience than younger age females (17.8%). The strength of association between the SV exposure and health outcomes did not differ by age group.

Conclusions—The self-report lifetime and childhood victimization to sexual violence may not necessarily higher among older than that among younger females. The current risk of exposure to sexual violence seems to influence the recall of lifetime and childhood victimization to a great extent. In order to make the field aware of this phenomenon, prevalence estimates from all three time frames (lifetime, childhood, and during the past 12 months) should be reported separately by age group.

[*]Corresponding author at: 4770 Buford Hwy NE, MS F64, Atlanta, GA 30341, USA. Tel.: +1 770 488 3783., afan@cdc.gov (A.Z. Fan).

Competing interests

The authors declare that they have no competing interests.

Authors contributions

AZF contributed to the conception and design of the study, data analysis, interpretation of the results and drafted the manuscript. HK and JM contributed to conception and design. SG, NWK and MS contributed to interpretation of the results and critically revised the manuscript. All authors read and approved the final manuscript.

Keywords

Age trend; Females; Lifetime risks; Sexual violence; Underestimation

1. Introduction

Sexual violence (SV) against girls and young women is a widespread serious public health and social problem. Effectively addressing this problem requires understanding its nature and magnitude; however, there is little population-level data from sub-Saharan Africa on this problem (Lalor, 2004). To begin addressing the issues around child sexual violence the US Centers for Disease Control and Prevention (CDC), the United Nations Children's Fund (UNICEF) and others as part of the Together for Girls partnership, have developed and implemented the Violence Against Children Surveys (VACS) in multiple countries around the world. These national house-hold surveys provide estimates of the prevalence and magnitude of sexual, physical and emotional violence perpetrated against children. In-country stakeholders use survey results to inform and catalyze robust policy and programmatic interventions at the national level (Reza et al., 2009).

Malawi conducted a VACS in 2013 to begin the process of addressing violence against children. Prior to the VACS, the only information available on violence at the population level was from the 2004 Malawi Demographic and Health Survey (DHS) and the Protecting the Next Generation: Understanding HIV Risk among Youth (PNG) 2004 study. The DHS indicated that about 13% of women aged 15–49 years who were married or cohabitating reported sexual violence from their domestic partner (Bazargan-Hejazi, Medeiros, Mohammadi, Lin, & Dalal, 2013). While the PNG study found that 38 percent of Malawi girls, aged 12–19 years, said they were "not willing at all" at their first sexual experience (Moore, Awusabo-Asare, Madise, John-Langba, & Kumi-Kyereme, 2007).

Current practice in VACS assumes that the estimates for self-reported childhood violence victimization can only be reliably obtained from youth who have survived the childhood. This belief is based on the following assumption: (1) the younger and older respondents are from the same cohort; (2) the victimization accumulates over time and older respondents are able to recall reliably what happened in regard to the SV victimization during their childhood in a retrospective study. However, particular concern has been expressed over the possibility that some retrospective accounts of adverse childhood experiences may not be accurate (Ceci, Gilstrap, & Fitneva, 2002; Hardt & Rutter, 2004; Loftus, 1993, 1994). On one hand, it is highly probable that when childhood violence is reported in retrospective studies, these reports are likely reliable due to nature of these types of events. On the other hand, literature shows that even with well-documented serious abuse or neglect, about one-third of individuals do not report its occurrence when specifically asked about it in adulthood (Williams, 1994); in addition, events in early childhood are less likely to be reported than similar events that occur at later ages. One way to control for recall bias is to conduct longitudinal studies in a specific population. Existing violence-focused longitudinal studies are based in developed nations but none in the lower and middle income nations; however these studies are expensive and results are not always quickly available to

stakeholders. Due to these limitations, estimating the burden of violence against childhood in low and middle income countries currently relies on retrospective surveys which have respondents recall of the onset, nature, course, and outcome of their experience with violence in childhood (PHDCN, 2015; Add Health Carolina Population Center, 2015; Longitudinal Studies Consortium on Child Abuse and Neglect, 2015; Office of Planning R & E, Administration for Children & Families, & U.S. Department of Health and Human Services, 2015; U.S. Department of Health and Human Services (DHHS), 2015).

In this study, the authors compared prevalence estimates of experience of SV (lifetime, childhood and during the past 12 months) lifetime risk in relation to age using Malawi's VACS female data. The authors also examined how reported SV forms differ by age group among victims in order to probe the cause of age-differential rates. In addition, the authors examined whether the strength of association between victimization to SV and selected physical and mental health outcomes differ by age group.

2. Methods

2.1. Overview of Malawi VACS

The Malawi 2013 Violence against Children and Youth Survey (VACS) was the first nationally representative household interview survey of violence against children in the Republic of Malawi. Conducted between September and October 2013, VACS Malawi interviewed females and males 13–24 years of age based on a four-staged stratified sample design. In the first stage a total of 212 enumeration areas (EAs) was selected with probability proportional to size stratified by region (North, Central, and South). In the second stage, a fixed number of 30 households were selected using equal probability systematic sampling. In the last stage, one eligible respondent (female or male depending on the selected EA) was randomly selected from the list of all eligible respondents 13–24 years of age in each household and administered the questionnaire. For EAs containing greater than 250 households segmentation was conducted to obtain a sample of geographic areas that were of suitable size for the field teams.

The survey included a short questionnaire for an adult in the household to build rapport with the family and to determine current socioeconomics of the household. An individual questionnaire was then administered to the selected eligible individuals. A total of 2162 interviews, 1029 females and 1133 males, were completed (overall response rate was 83.4% and 84.4%, respectively). The survey data allow estimates of experiences of SV during the respondents' lifetime, prior to age 18 and during the past 12 months. The final report can be found at http://www.togetherforgirls.org. In this paper, the analysis was conducted using female data only because the age-dependent patterns were very different for males and females.

2.2. Ethics, consent and permissions

World Health Organization (WHO) guidelines on ethics and safety in studies of violence against women were adhered in this national survey (http://www.who.int/gender/violence/womenfirtseng.pdf). The U.S. CDC's Institutional Review Board (IRB), and the Malawian

National Commission for Science and Technology Ethical Review Board, which protects the rights and welfare of human research subjects, independently reviewed and approved the study. A permission was obtained from the parent/primary caregiver to speak with selected eligible respondent under 18 years of age. Informed verbal assent was obtained by a trained female interviewer from each female respondent. The interviewers did not disclose to the head of household the full nature of the survey (the survey is focused on violence). The survey was said to be a life experiences survey or health survey. This was done to protect the child against retribution from a parent or caregiver who may be abusing them.

2.3. Exposure to sexual violence

A female respondent was considered to have been exposed to SV if she reported any of the following experiences during her lifetime: (1) unwanted sexual touching ("How many times in your life has anyone touched you in a sexual way without your consent, but did not try to force you to have sex?"); (2) attempted unwanted sex ("How many times has anyone tried to make you have sex against your will but did not succeed?"); (3) physically forced sex ("How many times in your life have you been physically forced to have sex?"); or (4) pressured sex ("How many times in your life has someone pressured you to have sex through harassment, threats and tricks and did succeed?"). The frequency of each form of SV was summed to obtain the frequency of overall lifetime exposure of SV. Three categories were created for the frequency of lifetime exposure of SV: none; once; and twice or more. For each form of SV, the respondent was further queried about the age at the first incident ("How old were you the first time…") and whether the first or most recent incident happened within the past 12 months ("Did this happen to you within the past 12 months?").

2.4. Definition of age group

Two age groups are conventionally used in VACS to produce major outcome statistics: 13–17 years (girls) and 18–24 years (young women). However, initial analysis of SV data indicated that the lifetime SV prevalence followed an upward trend through age 18 and declines after age 19. Therefore, for the purposes of this study, we redefined the age groups as 13–18 years (the younger age group or girls) and 19–24 years (the older age group or young women).

2.5. Statistical analysis

We first calculated the weighted age-specific prevalence of lifetime experience of SV and SV experience during the past 12 months. Next, we applied survival analysis to examine whether the survival curves differed for older vs. younger respondents. The primary aim of survival analysis is the modeling and analysis of "time-to-event" data in longitudinal studies. In this study, we defined the "time-to-event" as the recalled "age-to-first incident of SV". Survival time started at age 0 and ended at the age the first SV was reported. For the respondents who reported never having experienced SV, "survival time" was said to be "censured" at their current age. Survival probability was calculated using the Kaplan–Meier method, with the Log Rank used to test for significant differences (*P*-value at 0.05 level of significance) in the survival distributions in relation to the respondents' age group. Cox proportional hazards models (Cox, 1972), a class of survival models, were used to evaluate

the regression effects of age group (hazard ratios) on the time that elapsed before the first SV incident occurred.

Among those who reported having experienced SV, we calculated the prevalence of each type of SV as the first incident by age group. We then constructed multiple two-way tables of single form of SVs by age group and used Chi-Square tests to examine whether younger and older respondents differed significantly in the prevalence of each form of SV. We applied the Bonferroni correction to counteract the problem of multiple comparisons. To control the familywise error rate $\leq \alpha = 0.05$, we tested each individual hypothesis at a statistical significance level of $1/n$ times 0.05, where n represents the number of comparisons.

We used linear regression to examine the influence of age on the prevalence of SV for the young age group (ages 13–18) with the prevalence of SV as the dependent variable and age as the predictor (Predicted SV = Intercept + Slope*[age − 13]).

Finally, we ran logistic regression on selected physical and mental health outcomes presumably associated with SV experience and examined whether the strength of associations differed by age group. As an auxiliary analysis, we further tested dose-response relationship (causal assumption) relating the lifetime frequencies of SV incidents (none, once, twice or more) to the selected health outcomes.

The analyses were completed using SAS 9.3 with SAS-callable SUDAAN 11.0.1.

3. Results

3.1. Exposure to SV during the lifetime, prior to 18 years of age, and during the past 12 months

Malawi data showed that self-reported lifetime experience of SV prevalence increased (Fig. 1) in a linear manner from ages 13 to 18 (Predicted % SV = 0.219 + 0.067*(age − 13)). In other words, prevalence of lifetime SV increased 6.7% in average each year from age 13 to 18 years. However, the self-reported lifetime experience of SV plummeted since age 19. The rates fluctuated with no obvious pattern. The prevalence of the reported SV prior to age 18 and during the past 12 months followed a similar temporal trend. Over half of individuals aged 19–24 years who experienced SV during their lifetime (30%) already experienced that prior to age 18 (17%) (Table 1). The prevalence of self-reported SV prior to age 18 was significantly lower in older age group (17%) than that in younger age group (37%). Excluding those whose only lifetime SV experience occurred during the past 12 months (n = 63), we found that the persons who experienced SV in the past were about six times more likely to experience SV during the past 12 months (prevalence ratio = 5.98 (95% CI = 4.40–8.11)).

The weighted lifetime prevalence of SV is higher in younger age group (37.4%) than that in older age group (29.5%) but the difference was not significant (P = 0.07) (Table 1). However, weighted prevalence of SV victimization prior to age 18 years was about twice in

younger age group (36.8%) than that in older age group (17.0%) (prevalence rate ratio (95% CI) = 2.16 (1.35–3.47)).

As shown by Fig. 1, the trend of lifetime and childhood exposure to SV appeared to be largely driven by the recall of exposure during the past 12 months. The upward trend of lifetime SV for the younger age group was sustained by the increased SV exposure during the past 12 months. On the other hand, the self-report past 12-month SV exposure dropped steadily after 18 years of age.

Survival analysis indicated that age group was significantly associated with the reported age at the first incident of SV. For the younger age group, the first incident of SV was reported to occur earlier in life. The proportional hazard ratio of 3.32 implies a 3-fold increase in hazard for younger females to experience SV in their lifetime than older females (Table 1, Fig. 2).

3.2. The nature of the first SV by age group

We compared the nature (form) of the first SV experience among victims who experienced SV (Table 2). Over half of the younger victims (54.9%) reported “attempted sex” as the first SV experience, whereas only 35.1% of the older victims reported the same (*P* for difference = 0.01). We further combined “attempted sex” with “unwanted touch” to create a category of “non-penetrative form of SV”. About 87.1% of younger victims reported non-penetrative forms of SV as their first SV experience, compared with 64.2% of older victims. In contrast, the proportion reporting penetrative forms of SV (“forced” or “pressured” sex) was higher for older than for younger victims (42.7% vs. 22.2%) (*P* for difference = 0.003). Also, the perpetrator of the first incident recalled by older victims was more likely to be a boyfriend/romantic partner or husband (45%) than that by younger victims (25%). About 83% of individuals from older age group got married or lived with someone as if married while only 17% of individuals from younger age group did so. In addition, younger females reported more incidents of attempted sex than older females during their lifetime, while older females reported more incidents of forced sex than younger females. This pattern held true whether the denominator was victims of SV or all females.

3.3. Associations with health outcomes

We conducted logistic regressions relating lifetime SV experience to selected physical and mental health outcomes: sexual transmitted infections (STI); suicidal ideation or attempt; and moderate or serious psychological distress. No significant age-group by SV interactions were revealed on any of the selected health outcomes (Table 3). When adjusting for age group, lifetime SV experience was significantly associated with higher odds of STIs (about 3 times), suicidal ideation or attempt (about 3.3 times), and experience of moderate to serious psychological distress (about 2.5 times) than no SV experience. In addition, there were significant dose-response relationships between frequency of overall lifetime SV exposure and these health outcomes (*P* for linear trend < 0.01).

4. Discussion

Sexual abuse of children in their homes/communities is a global problem (Lalor, 2004; Lalor & McElvaney, 2010). Further, the ages of 13–24 years represent a vulnerable age window

for girls/young women to experience sexual violence. In a Tanzanian VACS, 30% of girls and young women aged 13–24 years reported having experienced at least one incident of SV before turning 18. The African Child Policy Forum (ACPF)'s studies in selected countries in Africa (Ethiopia, Kenya, Mali, Malawi, Morocco, Uganda, Zambia and Zimbabwe) reported the incidents of SV in the home ranged from 2% to 9%, while the incidents of SV outside of the home (in the communities, including schools) ranged from 10% to 30% (The African Child Policy Forum, 2014).

One of United Nations' strategic recommendations to achieve "Toward a World Free from Violence" is to "develop and implement a systematic national data collection and research efforts" for action to prevent and respond to violence against children (Special Representative of the Secretary-General on Violence Against Children, 2013). Reliable and robust surveillance data are thus critical. However, validity of the retrospective recall of serious childhood adversities is under debate. The prevalence of lifetime SV experience would likely increase with age. Thus, the equitable lifetime SV prevalence reported by older females compared with that by younger females from the same population is questionable. Are the lower reporting rates for some forms of SV in the older age group the result of memory loss, with repression of traumatic events, or cognitive evolution in the concept of SV? Are there other alternative hypotheses to explain this phenomenon?

Memories about adverse childhood experiences may fade with time as the mind may push unpleasant memories into inaccessible unconscious or subconscious levels (Loftus, 1993). Studies show that reports in adulthood of childhood experiences vary over time. Fergusson, Horwood, and Woodward (2000) examined the temporal stability of retrospective reports of physical and sexual abuse in a cohort of approximately 1000 young adults aged 18–21 years for occurrences of childhood sexual abuse that had occurred before they had reached the age of 16. A kappa of 0.45 was found for the agreement between comparable measures for the two age groups. Specifically, the stability of the reporting that they had not been abused was quite high (about 0.95), whereas consistency of reports of having been abused was low (about 0.50). Latent class analysis confirmed that there was a substantial measurement error and the false negative rate was about 50%. The authors concluded that estimates of abuse prevalence based on a single report are likely to seriously underestimate the true prevalence of abuse.

This memory decay is not unique to violence experiences during the early years of life. Researchers examined the 1997–1999 National Health Interview Survey injury data to assess the bias resulting from estimates based on different recall periods, the amount of time elapsed between the occurrence of a reported injury, and the timing of the interview (Harel et al., 1994; Warner, Schenker, Heinen, & Fingerhut, 2005). Findings indicated that the respondents appeared to experience some memory decay as they were asked to recall injury incidents happening further in the past, and the decay appeared to vary by severity of the episodes. In the Malawi VACS data, about 18% of females aged 13–24 years reported experiencing SV during the past 12 months, a rate greater than half of the lifetime exposure of SV (34%). On one hand it makes sense that the females who experienced SV in the past were much more likely to experience SV during the past 12 months. On the other hand, the "telescoping effect" (the tendency to recall past events as if they occurred closer to the

present interview time) (Harel et al., 1994; Warner et al., 2005) may also contribute to the large coincidence between SV exposure during the past 12 months and in the past (during lifetime and prior to age 18).

The degree of "forgetting" may also stem from other cognitive processes altering interpretation of memories of SV experienced in childhood. The unwanted touching or attempted sex which a young girl is willing to disclose may be reinterpreted or reframed when she is older; for example, she might be less likely to recall the past event as "unwanted" at the time of interview. In many sub-Saharan African cultures, women who are married may not see forced sex in marriage as violence (The African Child Policy Forum, 2014). The majority of the young women in older age group had been married at interview (83%), whereas the rate of marriage in the younger age group was only 17%. This could account for the sharp difference in the reported SV rate between these two age groups. Further, if a woman gets married to the perpetrator, then she may re-interpret the pre-marital SV event as pre-marital flirting or sex initiation. On the other hand, over time, people may be increasingly unable to recall non-penetrative incidents such as unwanted touching or attempted sex. These two cognitive processes may explain why "pressured" or "forced" sex were disproportionately higher reported as the experience of first SV among older victims (43%) than that among younger victims (22%). Furthermore, the phenomenon that older females were more likely to report the boyfriend/romantic partner or husband as the perpetrator of the first SV incident could indicate that they might have reported more recent and what they perceived as more severe SV exposure as their initial SV experience.

The abrupt declining risk from age 18 to 19 also could be consistent with a potential cohort effect. It is possible that young girls in the more recent cohort are exposed to a higher risk than women did in the older age group when they were younger (The African Child Policy Forum, 2014). These hypotheses may partially contribute to the lower prevalence of SV among women aged 19–24 years. Another possibility is that the women who were victimized as girls could be less likely to participate in the survey despite a relatively high response rate of 84.4% (a household and individual level response rate combined). However, we are unable to validate all these conjectures.

The prevalence of self-reported SV prior to age 18 was about half in older age group (17%) than that reported in younger age group (37%). This is opposite to the assumption that the individuals in older group would report higher rate of childhood SV victimization than the younger group because the older group already completed the childhood. Thus current practice of reporting childhood SV victimization only for older age group (18–24 years) and reporting recent (past 12 months) victimization only for younger age group in the country report can be misleading.

Despite the challenges with self-reported SV, we still obtained significant and non-differential relative risks for selected health outcomes which are presumably associated with SV in both younger and older age groups. The dose-response relationships are coincident with established causal relationships between violence victimization and certain health outcomes (Ballard et al., 2015; Fergusson et al., 2000; Norman et al., 2012; Williams, Clear, & Coker, 2013). One hypothesis is that the individuals who are well functioning in adult life

may be more likely to forget (or deny) early adversities, compared with those suffering physical and social impairment (Loftus, 1993). However, females who were able to recall their initial SV experience may be suffering more adverse health outcomes, such as re-victimization, STI, and psychological distress from those SV experiences. The retention of only severe SV cases in the “case” group may overestimate the adverse effects of SV in general if the “control” group consists only of those who have truly never experienced SV. However, the “control” group in real life may often include females who denied but actually experienced SV during their lifetime in a less frequent or non-penetrative manner. These respondents may have a relatively higher risk of SV-related health outcomes than true controls. The inclusion of these individuals in the control group may diminish or dilute the strength of the causal association. Consequently, the above two simultaneous selection biases may offset each other in affecting the strength of causal relationships between SV and physical and mental health outcomes. Therefore, in lieu of a gold standard for validation, simulation studies may facilitate testing the above hypotheses by approximating the magnitude of such biases in affecting relative risk estimates. Longitudinal studies (PHDCN, 2015; Add Health Carolina Population Center, 2015; Longitudinal Studies Consortium on Child Abuse and Neglect, 2015; Office of Planning et al., 2015; U.S. Department of Health and Human Services (DHHS), 2015) would shed more light on the strength of causal associations between violence experience and a variety of health and social outcomes.

This study has at least three limitations. First, due to the cross-sectional nature of the surveillance data, we are unable to differentiate whether the low prevalence of lifetime SV was due to cohort effect or recall bias. Second, survival analysis was “adopted” to model whether age group influences the time to an event (e.g., age at first SV incident). However, we did not actually have the “incident rate” at each age for each respondent due to the retrospective design. Third, age was self-reported and could not be independently verified; however, with increases in birth registration and government issued identification, wrong ages are less likely in the study age group.

In conclusion, the magnitude of lifetime SV exposure among girls and young women in Malawi may be much more profound than that revealed by this cross-sectional self-report survey. Nonetheless, the study clearly demonstrates that the risk of SV increases sharply until age 18 and then decreases gradually from age 19 to 24. Prevalence estimates for each time frame (lifetime, prior to age 18, and during the past 12 months) should be reported for each age group in burden reports. It also would be useful for future studies to examine SV recall across the same group of women over time to assess whether recall of previous SV experiences decreases as the women increase in age. This would provide an estimate of magnitude of underestimation of the burden. SV experiences during the past 12 months may be a more robust proxy to highlight this alarmingly high prevalent public health and human right problem. More sophisticated mathematical methods can be adopted to extrapolate the lifetime exposure rate using the past 12-month recall in a target population. Finally, more studies are needed to examine whether similar patterns are true for males and for other countries.

Acknowledgments

The Malawi VACS was sponsored by PEPFAR (U.S. President's Emergency Plan for AIDS Relief). The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

References

1. Add Health Carolina Population Center. [Accessed 07.07.15] Add Health: The national longitudinal study of adolescent health. 2015. http://www.cpc.unc.edu/projects/addhealth
2. Ballard ED, Van EK, Musci RJ, Hart SR, Storr CL, Breslau N, et al. Latent classes of childhood trauma exposure predict the development of behavioral health outcomes in adolescence and young adulthood. Psychological Medicine. 2015:1–12.
3. Bazargan-Hejazi S, Medeiros S, Mohammadi R, Lin J, Dalal K. Patterns of intimate partner violence: A study of female victims in Malawi. Journal of Injury and Violence Research. 2013; 5:38–50. [PubMed: 22289886]
4. Ceci SJ, Gilstrap L, Fitneva S. Children's testimony. In: Rutter M, Taylor E, editorsChild and adolescent psychiatry. Oxford: Blackwell Science; 2002. 117–127.
5. Cox D. Regression models and life tables. Journal of the Royal Statistical Society, Series B. 1972; 34:187–220.
6. Fergusson DM, Horwood LJ, Woodward LJ. The stability of child abuse reports: A longitudinal study of the reporting behaviour of young adults. Psychological Medicine. 2000; 30:529–544. [PubMed: 10883709]
7. Hardt J, Rutter M. Validity of adult retrospective reports of adverse childhood experiences: Review of the evidence. Journal of Child Psychology and Psychiatry. 2004; 45:260–273. [PubMed: 14982240]
8. Harel Y, Overpeck MD, Jones DH, Scheidt PC, Bijur PE, Trumble AC, et al. The effects of recall on estimating annual nonfatal injury rates for children and adolescents. American Journal of Public Health. 1994; 84:599–605. [PubMed: 8154563]
9. Lalor K. Child sexual abuse in sub-Saharan Africa: A literature review. Child Abuse and Neglect. 2004; 28:439–460. [PubMed: 15120925]
10. Lalor K, McElvaney R. Child sexual abuse, links to later sexual exploitation/high-risk sexual behavior, and prevention/treatment programs. Trauma Violence Abuse. 2010; 11:159–177. [PubMed: 20679329]
11. Loftus EF. The reality of repressed memories. American Psychologist. 1993; 48:518–537. [PubMed: 8507050]
12. Loftus EF. The repressed memory controversy. American Psychologist. 1994; 49:443–445.
13. Longitudinal Studies Consortium on Child Abuse and Neglect. [Accessed 30.06.15] Longitudinal studies of child abuse and neglect. 2015. http://www.unc.edu/depts/sph/longscan/
14. Moore AM, Awusabo-Asare K, Madise N, John-Langba J, Kumi-Kyereme A. Coerced first sex among adolescent girls in sub-Saharan Africa: Prevalence and context. African Journal of Reproductive Health. 2007; 11:62–82. [PubMed: 18458747]
15. Norman RE, Byambaa M, De R, Butchart A, Scott J, Vos T. The long-term health consequences of child physical abuse, emotional abuse, and neglect: A systematic review and meta-analysis. PLoS Medicine. 2012; 9:e1001349. [PubMed: 23209385]
16. Office of Planning R & E, Administration for Children & Families, & U.S. Department of Health and Human Services. [Accessed 05.07.15] National Survey of Child and Adolescent Well-Being (NSCAW), 1997–2014. 2015. http://www.acf.hhs.gov/programs/opre/research/project/national-survey-of-child-and-adolescent-well-being-nscaw
17. [Accessed 07.07.15] PHDCN: Project on human development in Chicago neighborhoods. http://www.icpsr.umich.edu/icpsrweb/PHDCN/
18. Reza A, Breiding MJ, Gulaid J, Mercy JA, Blanton C, Mthethwa Z, et al. Sexual violence and its health consequences for female children in Swaziland: A cluster survey study. Lancet. 2009; 373:1966–1972. [PubMed: 19428100]

19. Special Representative of the Secretary-General on Violence Against Children. Toward a world free from violence-global survey on violence against children. 2013. http://srsg.violenceagainstchildren.org/page/920

20. The African Child Policy Forum. The African report on violence against children. 2014. http://srsg.violenceagainstchildren.org/sites/default/files/documents/docs/african_report_on_violence_against_children_2014.pdf

21. U.S. Department of Health and Human Services (DHHS). [Accessed 05.07.15] Fourth national incidence study (NIS) of child abuse and neglect (NIS-4). Report to congress. 2015. http://www.acf.hhs.gov/sites/default/files/opre/nis4_report_congress_full_pdf_jan2010.pdf

22. Warner M, Schenker N, Heinen MA, Fingerhut LA. The effects of recall on reporting injury and poisoning episodes in the National Health Interview Survey. Injury Prevention. 2005; 11:282–287. [PubMed: 16203836]

23. Williams LM. Recall of childhood trauma: A prospective study of women's memories of child sexual abuse. Journal of Consulting and Clinical Psychology. 1994; 62:1167–1176. [PubMed: 7860814]

24. Williams CM, Clear ER, Coker AL. Sexual coercion and sexual violence at first intercourse associated with sexually transmitted infections. Sexually Transmitted Diseases. 2013; 40:771–775. [PubMed: 24275726]

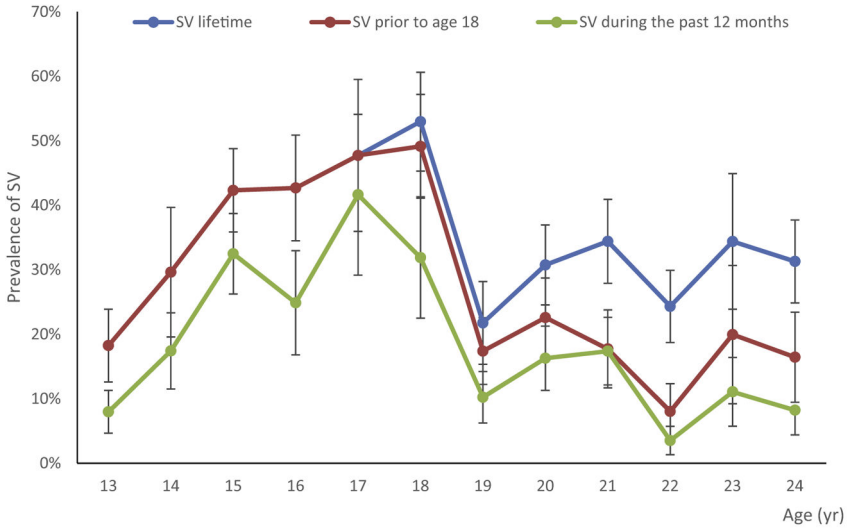

Fig. 1.

Prevalence of sexual violence (SV) lifetime, prior to age 18 years of age, and during the past 12 months by self-report among females aged 13–24 years of age (prevalence % and standard error). Malawi Violence Against Children and Youth Survey, 2013. *Note*: Weighted estimates were presented for each year of age. Standard errors for weighted estimates are shown.

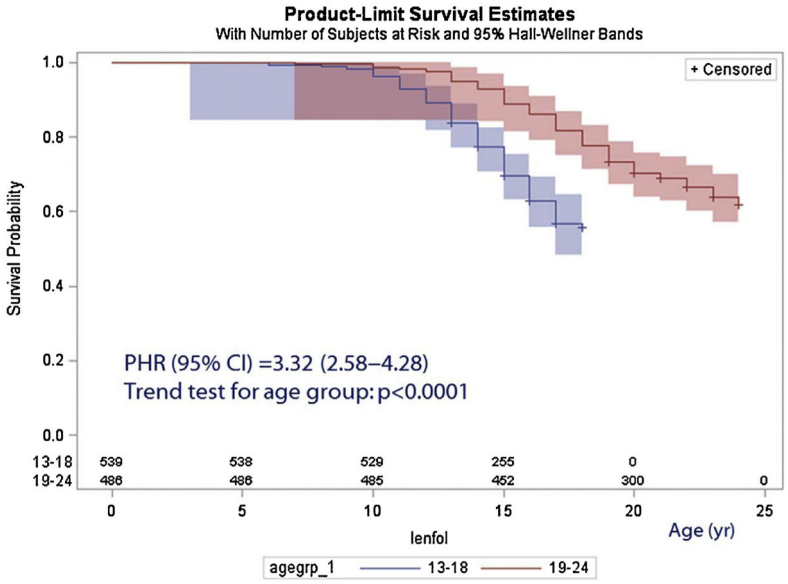

Fig. 2.

Survival curve by age group. Malawi Violence Against Children and Youth Survey, 2013. *Note*: The gray-shaded area around the survival curve represents the 95% confidence band for the younger age group, while the red-shaded area around the survival curve represents the 95% confidence band for the older age group. PHR – proportional hazard ratio; CI – confidence interval.

Table 1

Prevalence of lifetime and past 12-month SV victimization by age group among females. Malawi Violence Against Children and Youth Survey, 2013.

Age group	*n*/*N*	% Crude SV	% Weighted SV
Lifetime SV victimization			
13–18	168/541	31.1	37.4 (3.8)
19–24	161/488	33.0	29.5 (2.5)
P for difference		0.55	0.07
SV victimization prior to 18 years of age			
13–18	167/541	30.8	36.8 (3.8)
19–24	89/488	18.2	17.0 (1.5)
P for difference		<0.0001	<0.0001
Past 12-month SV victimization			
13–18	113/541	20.9	24.3 (1.9)
19–24	69/488	14.1	11.2 (2.3)
P for difference		0.005	0.001

Note: SV – sexual violence.

Table 2

Prevalence [% (SE)] of different forms of SV for the first incident of SV by age group among females who reported sexual violence experience in their lifetime (n = 329). Malawi Violence Against Children and Youth Survey, 2013.

SV form	Age group		*P* for Chi-square test	Alpha level
	13–18 years	19–24 years		
Unwanted touch	44.2 (7.5)	38.8 (6.9)	0.68	0.0125
Attempted sex	54.9 (5.3)	35.1 (6.7)	0.01[a]	0.0125
Forced sex	16.1 (7.9)	30.3 (5.3)	0.03	0.0125
Pressured sex	12.7 (4.2)	13.8 (5.6)	0.68	0.0125
Unwanted touch or attempted sex	87.1 (3.3)	64.2 (9.8)	0.03	0.025
Forced or pressured sex	22.2 (7.0)	42.7 (9.5)	0.003[a]	0.025

Note:

[a]Significantly different with a desired α = 0.05.

SV – sexual violence; SE – standard error.

Table 3

Logistic regression [OR (95% CI)] for selected health outcomes in association with lifetime experience of SV among females: by age group and combined analysis. Malawi Violence Against Children and Youth Survey, 2013.

Outcome	Age group		Combined analysis with adjustment for age group
	13–18 years	19–24 years	
Sexual transmitted infection	2.80 (1.17–6.68)	2.97 (1.41–6.21)	2.90 (1.59–5.29)
Suicidal ideation or attempt	1.70 (0.53–5.51)	4.90 (1.83–13.13)	3.27 (1.66–6.46)
Experienced moderate to serious psychological distress	2.87 (1.14–7.21)	2.20 (0.80–6.05)	2.53 (1.62–3.95)

Note: OR (95% CI) – odds ratio (95% confidence interval).